



# SPECIAL VALVES

## Forced-Air-Cooled R.F. Pentode

Code: 5J/180E (CV445)

### CATHODE

Thoriated-tungsten filament		
Filament voltage	9	V
Nominal current	30	A
Filament cold resistance	0.04	$\Omega$
Maximum usable emission	12	A
†Pirani test figure, approx.	{ Measured at 4A after 60 min }	0.21
		V

### CHARACTERISTICS

Mutual conductance	{ Measured at $V_a$ 6 kV : $V_{g2}$ 1.5 kV $I_a$ 0.5 A }	5.75	mA/V
Screen grid $\mu$		4	

### DIRECT INTERELECTRODE CAPACITANCES

Input	35	pF
Output	16	pF
Anode to grid	0.9	pF

### AIR COOLING REQUIRED

For an anode dissipation of	2.1	2.75	3.5	kW
Volume of air required through radiator	325	450	580	cu ft/min
	9	12.4	16	m <sup>3</sup> /min
At a water pressure of	0.75	1.5	2.5	cm
	1.9	3.8	6.4	in
Maximum ambient temperature			45	°C
Maximum radiator core temperature			130	°C
Maximum anode, or lead, seal temperature			150	°C

### MECHANICAL DATA

Nominal overall length	$8\frac{1}{2}$ in	220	mm
Maximum radiator diameter	$5\frac{7}{8}$ in	149.2	mm
Net weight		5.2	kg
		11.5	lb
Shipping weight, approx.		19.8	kg←
		44	lb←
Shipping dimensions		24 × 24 × 26	in←
		61 × 61 × 66	cm

† When Pirani tests are made, the figures quoted on the card received with the valves should be used and not the approximate values given above.

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5J/180E—1



## Standard Telephones and Cables Limited

Registered Office: Connaught House, Aldwych, W.C.2

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**SPECIAL VALVES**

**Forced-Air-Cooled  
R.F. Pentode**

**Code: 5J/180E (CV445)**

**MAXIMUM RATINGS AND TYPICAL OPERATING  
CONDITIONS**

**RADIO FREQUENCY**

**Class C Power Amplifier. Anode subject to modulation**  
(Carrier conditions per valve for use with 100% modulation.)

**Maximum Ratings**

Maximum direct anode voltage	4.8	kV
Maximum direct anode current	1.25	A
Maximum direct anode dissipation	2.35	kW
Maximum direct screen voltage	1.5	kV
Maximum direct screen current	165	mA
Maximum direct screen dissipation	100	W
Maximum direct grid dissipation	50	W
Maximum frequency for above ratings	30	Mc/s

**Typical Operating Conditions**

Direct anode voltage	4.5	kV
Direct screen voltage	1.5	kV
Direct grid voltage	-900	V
Direct anode current	1	A←
Direct screen current	20	mA←
*Direct grid current	25	mA
Peak r.f. grid voltage	1 050	V
Power output	2.9	kW

**Class C Power Amplifier or Oscillator. Unmodulated**

**Maximum Ratings**

Maximum direct anode voltage	6	kV
Maximum direct anode current	2.5	A
Maximum direct anode dissipation	3.5	kW
Maximum direct screen voltage	1.5	kV
Maximum direct screen current	250	mA
Maximum direct screen dissipation	150	W
Maximum direct grid dissipation	50	W
Maximum frequency for above ratings	30	Mc/s

**Typical Operating Conditions**

Direct anode voltage	6	kV←
Direct screen voltage	1.5	kV
Direct grid voltage	-715	V←
Direct anode current	1.4	A←
Direct screen current	30	mA←
*Direct grid current	45	mA←
Peak r.f. grid voltage	915	V←
Power output	5.75	kW←

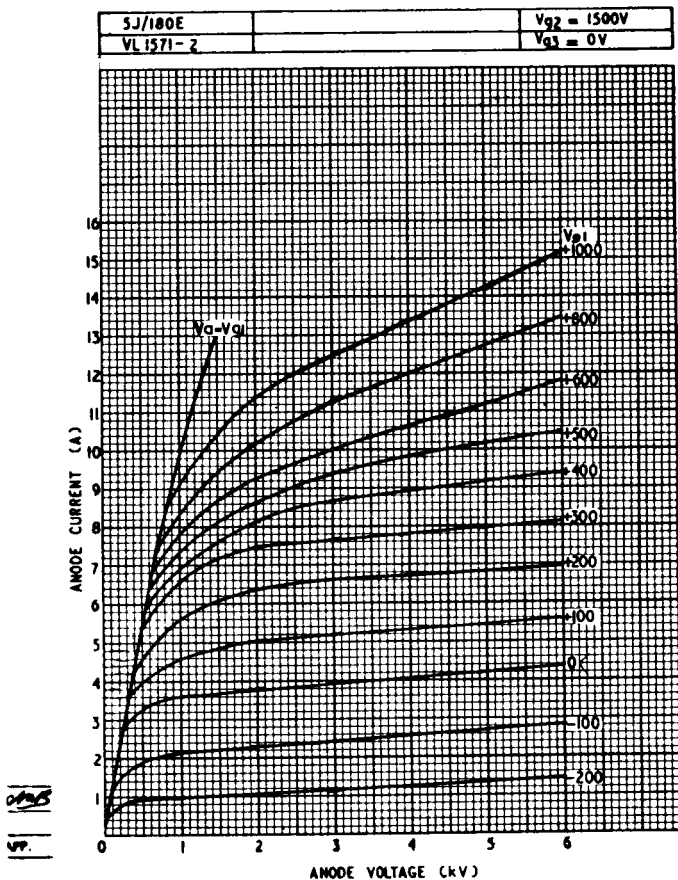
\*Subject to wide variation dependent upon impedance of the load circuit.



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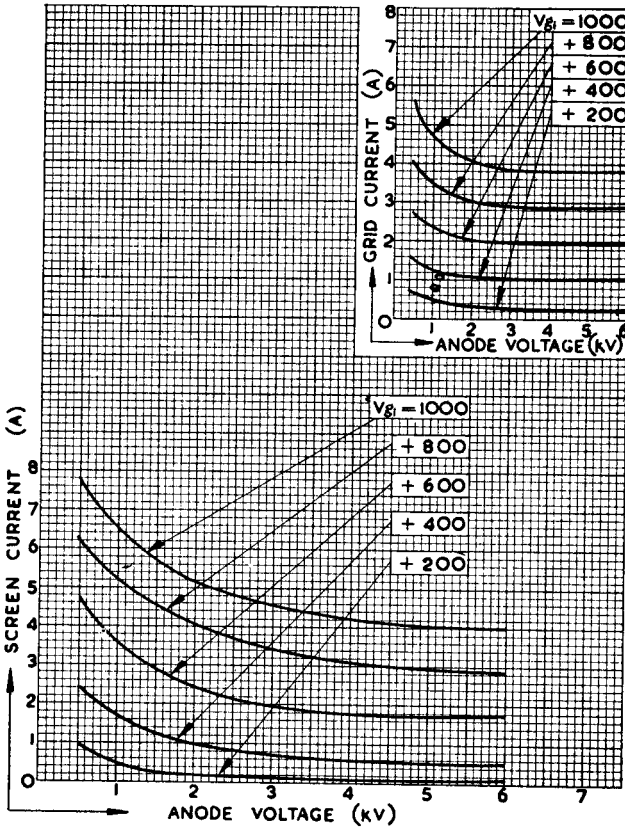
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Code: 5J/180E (CV445)

5J/180E	$V_{g2} = 1500 \text{ V.}$
VL1572	$V_{g3} = 0 \text{ V.}$

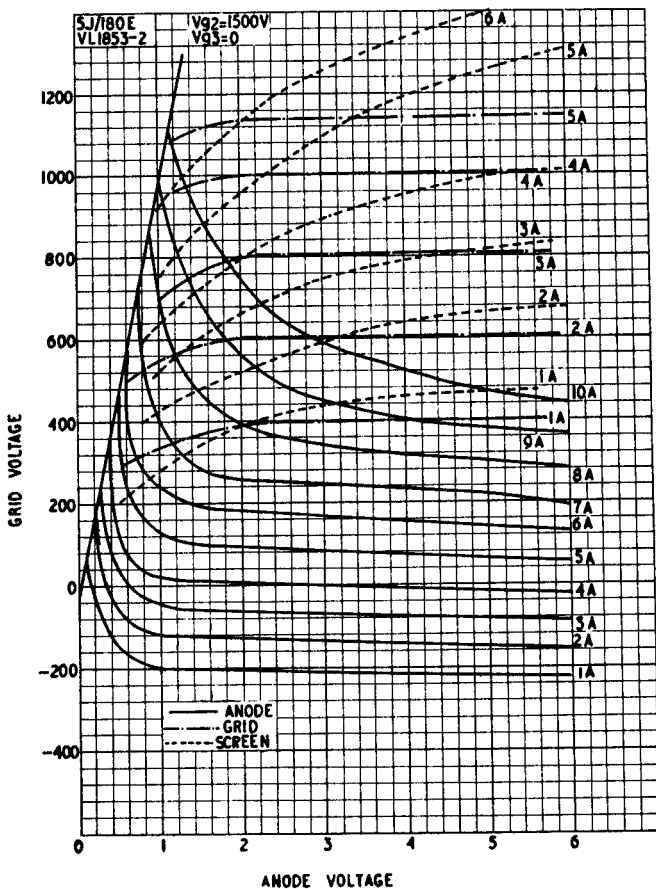




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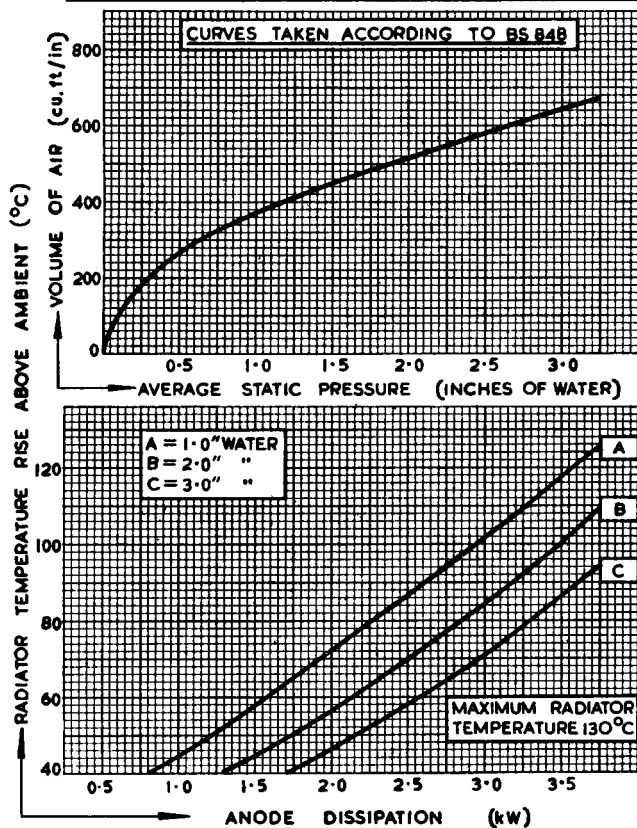
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Code: 5J/180E (CV445)

3J/170E & 5J/180E	RADIATOR COOLING	$V_f = 9\text{ V}$
VL 1942-2	REQUIREMENTS	$p_a = 3.5\text{ kW (MAX)}$

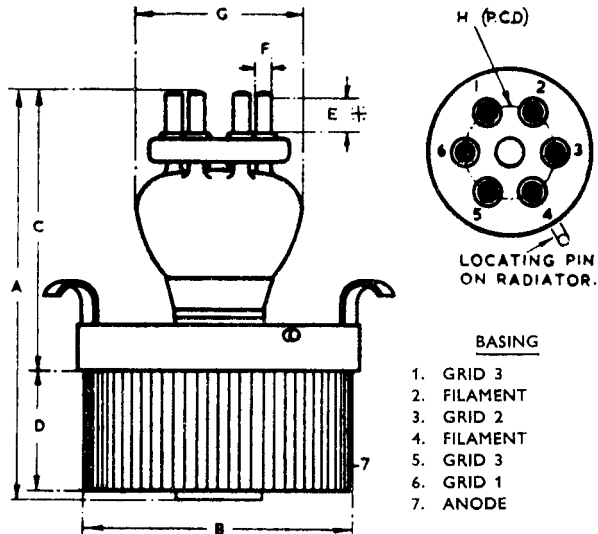




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DIM.	MILLIMETRES	INCHES
A	220 NOM.	$8\frac{3}{4}$ NOM.
B	$147.6 \pm 1.6$	$5\frac{11}{16} \pm \frac{1}{16}$
C	$154 \pm 3.2$	$6\frac{1}{16} \pm \frac{1}{8}$
D	63.5 NOM.	$2\frac{1}{2}$ NOM.
E*	21 MIN.	$\frac{1}{2}$ MIN.
F	$9.53 \pm 0.05$	$0.375 \pm 0.002$
G	92 MAX.	$3\frac{3}{8}$ MAX.
H	$49.2 \pm 0.8$	$1\frac{11}{16} \pm \frac{1}{32}$

BASIC FIGURES ARE INCHES

\* DENOTES: CONTACT LENGTH